

SMC 2016

IEEE INTERNATIONAL CONFERENCE ON
SYSTEMS, MAN, AND CYBERNETICS
OCTOBER 9-12



<http://www.smc2016.org/>
**SMC 2016 Workshop on
Women in Engineering**

Workshop organizers:

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Introduction/Call for Papers

Inspired by the liaison of IEEE Women in Engineering (WiE) and IEEE SMC Society, and following its mission to inspire, engage and advance women in SMC's technical disciplines, the idea of the proposed workshop Women in Engineering for the SMC 2016 conference is to promote WiE. As such, it represents a first initiative within the SMC conferences.

The core of the workshop will focus on Cyber-Medical Systems topic, and will cover topics in physiological control systems (tumor control, diabetes control), model-based healthcare applications (anesthesia), knowledge-based systems (cyber-medical systems), but will also embrace a broader view on SMC's control engineering applications (adaptive control, robust control, model predictive control, fractional order control).

Participation is free to all registered SMC2016 attendees.

Indicative Topics/Areas

1. Fractional order control
2. From viscoelastic models to lung function devices
3. Antiangiogenic tumor growth model and control
4. Model Predictive Control and State Estimation for Intravenous Anesthesia
5. Cyber-Medical Security
6. Modeling and analysis of computer networks
7. Data mining in myocardial infarction identification

Important Dates

April 15, 2016: Deadline for submission of full-length papers

May 25, 2016: Acceptance/Rejection Notification.

July 9, 2016: Final camera-ready papers due in electronic form.

Submission

Manuscripts for a Special Session should **NOT** be submitted in duplication to any other regular or special sessions and should be submitted to SMC2016 main conference online submission system on SMC2016 conference website.

All submitted papers of Special Sessions have to undergo the same review process (three completed reviews per paper). The technical reviewers for each Special Session paper will be members of the SMC2016 Program Committee and qualified peer-reviewers to be nominated by the Special Session organizers.

ORGANIZING COMMITTEE AND BIOGRAPHY

- [Levente Kovács](#), Obuda University, Hungary, got his MSc degree in electrical engineering at "Politehnica" University of Timisoara, Romania in 2000. He received his PhD from Budapest University of Technology and Economics (BME) in 2008. From 2005 he was a full-time instructor at BME, Department of Control Engineering and Information Technology; from 2010 he is an associate professor. He defended his habilitation with excellent mark at the Obuda University in 2013. He was János Bolyai Research Fellow of the Hungarian Academy of Sciences between 2012 and 2015. From 2012 he is an associate professor in Obuda University. He established the Physiological Controls Group in 2013. He is vice dean for education of the Obuda University's John von Neumann Faculty of Informatics. He is an IEEE member from 2009, IFAC TC 8.2 "Biological and Medical Systems" member from 2010 and IEEE CSS TC on Medical and Healthcare Systems from 2016. From 2010 he is Membership Development officer of the IEEE Hungary Section and elected vice-chair of the IEEE Hungary Section from 2013. From 2015 he has been elected as new chair of the IEEE SMC Hungary Chapter as well. He is IEEE SMC member from 2012 recruiting several young women researchers. His fields of interest are modern control theory and physiological controls; he has published more than 250 articles having an h-index of 11 and supervised 6 PhD students. In 2015 he is winner of the highly prestigious ERC StG grant of the European Union.
- [Clara Ionescu](#), Ghent University, Belgium got her PhD degree in 2009 from Ghent University and subsequently the prestigious post-doctoral award for excellence from Flanders Research Foundation (FWO) in Belgium. She has coined the term 'fractional order impedance' within the topic of respiratory system analysis and as such, her publications are leading in this domain reported in Web of Science. She is member of the IEEE Engineering and Biology Society and IEEE Control Systems Society since 2007. She became an IEEE SMC member from 2014, IEEE CSS TC on Medical and Healthcare Systems member from 2008 and IFAC TC 8.2 "Biological and Medical Systems" member. She is also IEEE member in the CSS TC on Standards since 2016. Her research aims to bridge the gap between mathematical modeling concepts and clinical practice, therefore bringing an added value to the state of art in emerging disciplines in engineering. The topics of research cover modeling respiratory system, classification of respiratory diseases, modeling drug diffusion in anesthetized patients and depth of anesthesia control. Her papers cover application areas in both biomedical engineering as well as process control and mechatronics. She has 90 publications in Web of Science, a citation index of 11 and she is co-editor of several special issues in various fields of research.

INVITED SPEAKERS AND BIOGRAPHY:

- [Pasik-Duncan Bozena](#), IEEE WIE Committee member, University of Kansas, USA, received her Master's degree in Mathematics from University of Warsaw in 1970, and her Ph.D. and D.Sc. (Habilitation) degrees in Mathematics from the Warsaw School of Economics in 1978 and 1986 respectively. She is a Professor of Mathematics, a Courtesy Professor of both EECS and AE, and an ITTC Investigator at the University of Kansas. Her research interests are primarily in stochastic systems and stochastic adaptive control, system identification and estimation, and control education as a field that spans science, technology, engineering and mathematics (STEM) education.

- [Maria Pia Fanti](#), IEEE SMC WiE Chair, Polytechnic of Bari, Bari, Italy, received the Laurea degree in electronic engineering from the University of Pisa (Italy) in 1983 and was a visiting researcher at the Rensselaer Polytechnic Institute of Troy, New York, in 1999. Since 1983 she is with the Department of Electrical and Information Engineering of the Polytechnic of Bari (Italy) where now she is full professor of System and Control Engineering and Chair of the Laboratory of Automation and Control. Her research interests include discrete event systems, Petri net, consensus protocols, modeling and optimization of complex systems such as automated manufacturing systems, automatic guided vehicle systems, traffic networks, supply chains, and healthcare systems. She has published around 240+ papers and two textbooks on these topics with h-index 22 on Scopus and 19 in WoS. She was General Chair of the 2nd IFAC Workshop on Dependable Control of Discrete Systems, of the 2010 IEEE Workshop on Health Care Management, and of the 2011 IEEE Conference on Automation Science and Engineering. Prof. Fanti is Editor of IEEE Trans. on Automation Science and Engineering and was Associate Editor of the IEEE Trans. on Systems, Man, and Cybernetics: Systems (2004-2015). She is member at large of the board of governor of the IEEE SMC Society, Chair of the SMC WIE, Co-Chair of the Technical committee on Discrete Event Systems of the IEEE SMC Society, Chair of the Central & Southern Italy SMC Chapter, Chair of the Technical committee on Automation in Logistics of the IEEE Robotics and Automation
- [Clara Ionescu](#), Ghent University, Belgium is senior researcher and holder of the prestigious Flanders Research Foundation FWO post-doctoral fellow at Ghent University. She is author of more than 150 scientific papers, of which 90 cited in Web of Science with a citation index of 11. She is PhD supervisor since 2009 and she is currently guiding 8 PhD students. Currently she is involved in 5 international projects with both industrial and biomedical applications, for identification and control. Her main research interests include biomedical applications, with identification and advanced control objectives with special focus on anesthesia control.
- [Ioana Nascu](#), is with Imperial College London, United Kingdom and visiting scholar at Texas A&M University. She has been a member of the "Multi-parametric Optimization and Control Group" of Prof. E. N. Pistikopoulos since January 2011. She has a joint 2 year master degree from Technical University of Cluj Napoca, Romania and Ghent University, Belgium on advanced process control with focus on biomedical systems. Her research interests are on advanced control strategies including model predictive control and multiparametric model predictive control. More specifically, her research focuses on developing advanced multiparametric optimization and control strategies for the anaesthesia process. She has been coauthor of 4 peer reviewed journal publications and 16 conference papers.
- [Johanna Sapi](#), Obuda University, Hungary, got her BSc degree in Health care management at Semmelweis University, Budapest, Hungary in 2010, and MSc degree in Biomedical Engineering at Budapest University of Technology and Economics, Hungary in 2012. She received her PhD degree in applied informatics at Obuda University, Hungary in 2015, where she is currently senior lecturer and member of the Physiological Controls Group led by Dr. Levente Kovács. Her research topic is model-based control of cancer diseases. She is an IEEE member from 2013, and recently elected secretary of the IEEE SMC Hungary Chapter from 2016. She published 26 scientific publications with h-index 7.

- [Teresa Mendonca](#), University of Porto, Portugal, is associate professor at the Mathematics Department, Faculty of Sciences. Her research interest is in control engineering and physiological systems, being leader of the Modeling and Control in Anesthesia and Biomedical Systems Research Group. She has co-authored more than 150 scientific papers and organized several special sessions at international conferences. Since 2005, Dr. Mendonca has supervised (or co-supervised) 10 PhD students. She is member of the IEEE SMC, the IEEE-CSS TCs on Systems Identification and Adaptive Control, and IEEE CSS TC on Medical and Healthcare Systems, and the IFAC TC on Biological and Medical Systems.
- Cristina Muresan, Technical University of Cluj Napoca, Romania, is senior lecturer at the Automation Department, Faculty of Automation and Computer Science, Technical University of Cluj-Napoca, Romania. She received her master degree in 2009 and her PhD in 2011 in advanced process control with applications in nuclear technologies. Since 2007, she has published over 60 papers and book chapters, amongst which 6 have been awarded by the Romanian government. She is currently involved in 5 research grants, all dealing with multivariable and fractional order control. Her research interests include modern control strategies, such as predictive algorithms, robust nonlinear control, fractional order control, time delay compensation methods and multivariable systems.
- Eva-H. Dulf received her PhD degree in advanced process control with applications in nuclear technologies at Technical University of Cluj-Napoca, Romania in 2006, where she is currently professor and leader of the Advanced Process Control Methods Group. She got her habilitation degree in 2015. Her research interests include advanced control strategies. More specifically, her research focuses on developing advanced control strategies for complex chemical and biochemical processes. She has published over 90 papers in journals and conferences and 12 books or book chapters. She has 34 awards at international exhibition of inventions. She is an IEEE member from 2009

PROPOSED PROGRAM

9TH OCTOBER, 2016

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| 9.00-9.30 | IEEE WiE plenary (Pasik-Duncan Bozenna) |
| 9.30-10.00 | IEEE SMC WiE plenary (Maria Pia, Ljiljana Trajkovic) |
| 10.00-10.30 | Coffee break |
| 10.30-11.30 | Cyber-Medical Systems plenary (Clara Ionescu) |
| 11.30-13.00 | Lunch |
| 13.00-14.30 | WiE session on CyberMedical Systems (chair: Ioana Nascu, co-chair: Johanna Sapi) |
| 14.30-15.00 | Coffee break |
| 15.00-16.30 | WiE session on Fractional Order Systems (chair: Clara Ionescu, co-chair: Cristina Muresan) |